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H. ELLIOTT

APPARATUS FOR HOLDING, HANDLING, AND DISPLAYING ROLLS OF LINOLEUM, CARPETS, CLOTH, PAPER, AND THE LIKE

Filed Feb. 8, 1924 3 Sheets-Sheet 1

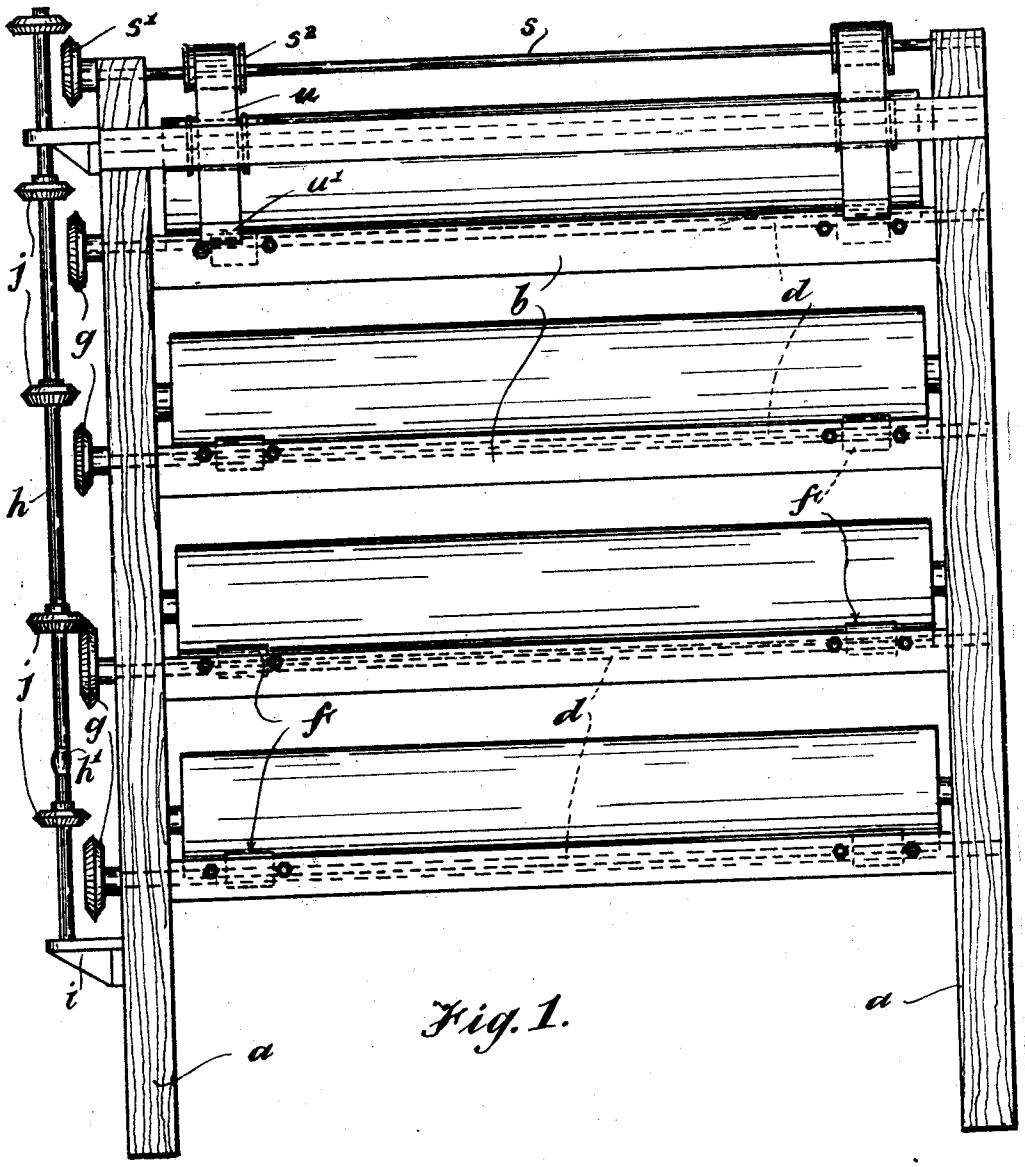


Fig. 1.

Inventor:—
Henry E. Elliott.
by his Attorneys—
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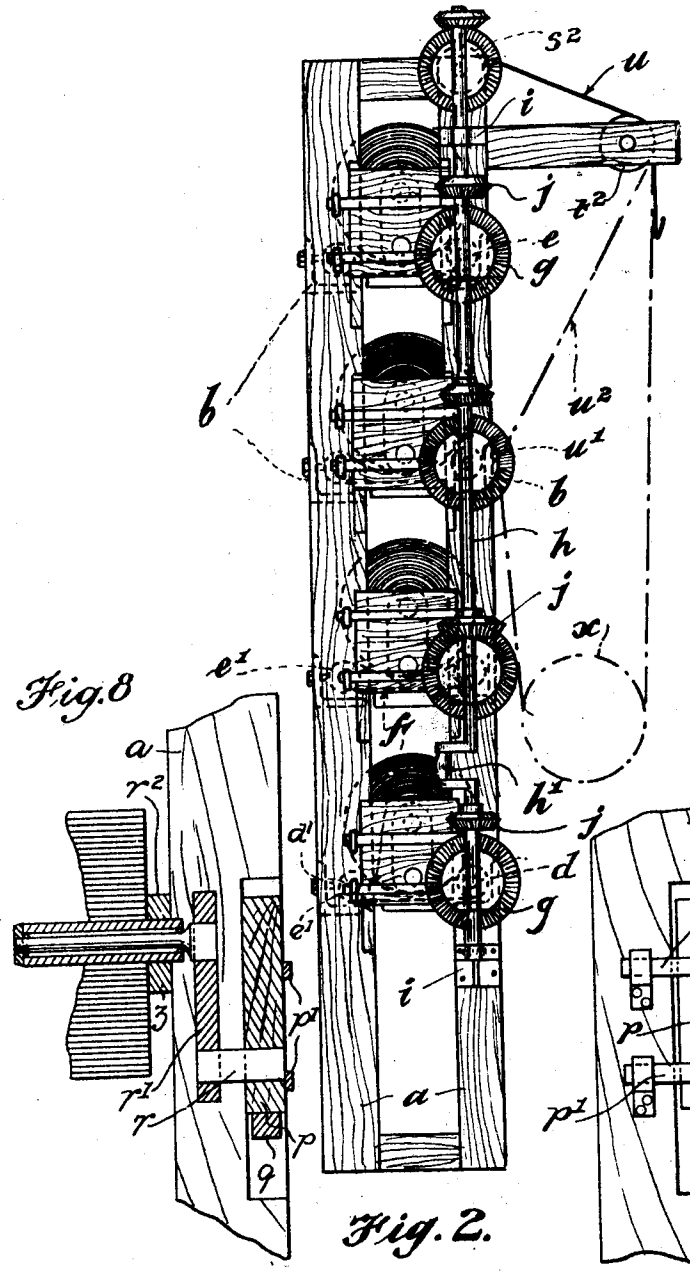
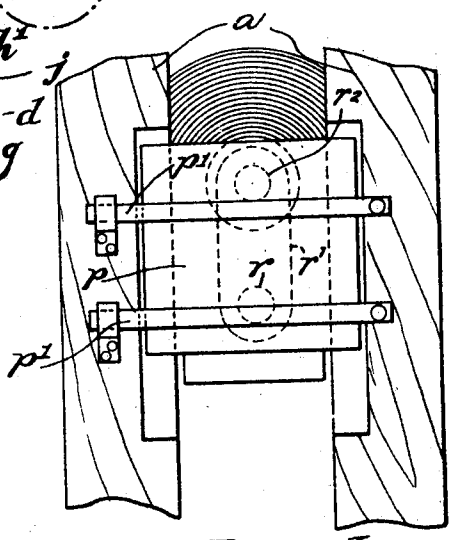


Fig. 2.

Fig. 8

Fig. 7



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Filed Feb. 8, 1924 3 Sheets-Sheet 3

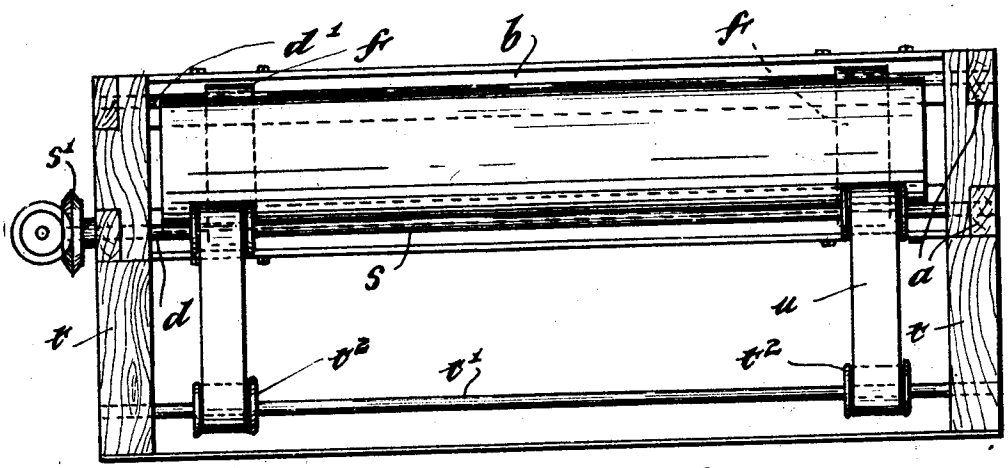


Fig. 3.

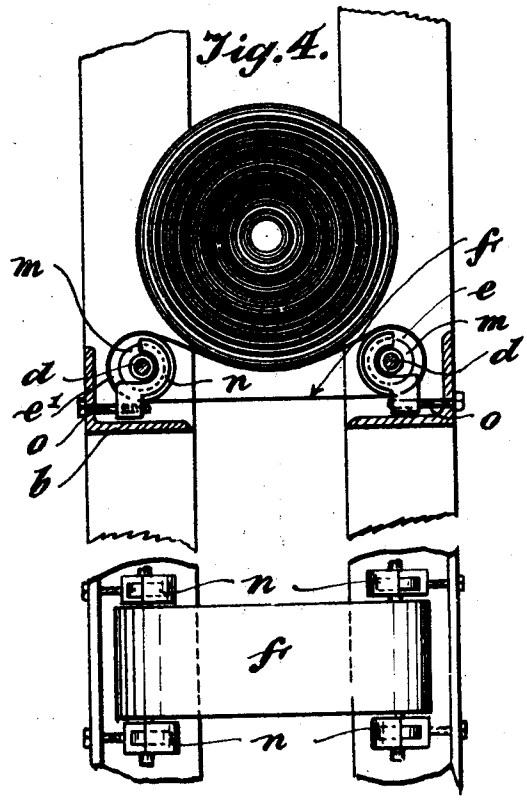


Fig. 4.

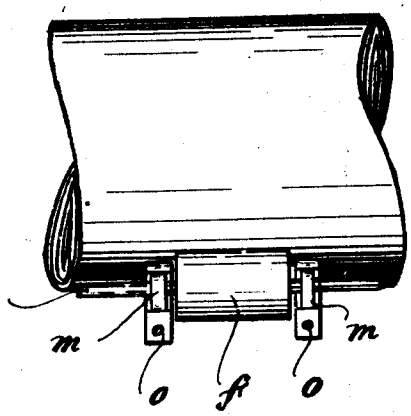


Fig. 5.

Fig. 6.

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Patented Feb. 5, 1929. 1,701,361

UNITED STATES PATENT OFFICE.

HENRY ELLIOTT, OF GREENOCK, SCOTLAND.

APPARATUS FOR HOLDING, HANDLING, AND DISPLAYING ROLLS OF LINOLEUM, CARPETS, CLOTH, PAPER, AND THE LIKE.

Application filed February 8, 1924, Serial No. 691,462, and in Great Britain February 22, 1923.

This invention comprises improvements in and relating to apparatus for holding, handling, and displaying rolls of linoleum, carpets, cloth, paper, lead and the like.

My invention has for its object to provide a shelving structure for such rolls whereby the rolls can be supported in such manner that they can be readily rolled and unrolled for display.

A further object of my invention is to provide such structure with shelves for supporting the rolls in such manner that they will not be marked or disfigured by the shelf.

Another object of my invention is to ensure that good frictional contact is maintained between the rollers and the supporting shelves.

A still further object of my invention is to provide such apparatus with means whereby the rolls can be readily raised and lowered to and from the shelves.

According to my invention rolls of linoleum, carpets, cloth, paper, lead and the like are supported by a system comprising a number of superimposed shelves each formed of longitudinally extending rollers and one or more broad endless bands mounted on said rolls the tension in the bands being such that they sag under the weight of the rolls placed thereon and thereby retain the rolls in position.

My invention further consists in providing means whereby the belts or the rollers can be driven so that any roll resting thereon can be unrolled, the unrolled portion descending in front of the apparatus to be displayed.

Likewise the rolls can be rewound by driving the belts or the rollers in the opposite direction.

To enable the rolls to be raised and lowered from the shelves I provide a raising band, or bands or the like, adapted to be attached to the frame and operated by a winding drum.

Spindles may be inserted in the ends of the rolls and which engage with spring influenced or weighted elements which serve to maintain the rolls in good frictional contact with the endless bands or rollers forming the shelves.

A preferred construction of apparatus in accordance with my invention is illustrated, by way of example only, on the annexed sheet of drawings and whereon,

Figure 1 is a front elevation.

Figure 2 an end elevation, and

Figure 3 a plan view of the apparatus.

Figure 4 is a part sectional end elevation illustrating one of the supporting bands showing a roll resting thereon.

Figure 5 is an end elevation of Figure 4, the supporting frame being entirely omitted.

Figure 6 is a plan view of Figure 4, the roll being omitted.

Figures 7 and 8 illustrate views at right angles to each other of an arrangement whereby the rolls are kept in good frictional contact with their supporting belt.

Referring to the drawings:—

a designates four uprights between which extend the longitudinal angle iron bars *b*.

Also extending between the uprights are the cross spindles or rods *d*, d^1 on each of which are secured two rollers *e*, e^1. Short and broad endless belts or bands *f* pass over the rollers of one spindle to the rollers on the spindle directly opposite as clearly shown in Figures 4, 5 and 6.

The one end of said spindles *d* at the front of the apparatus project beyond the frame as indicated in Figure 1 and to the projecting ends bevel wheels *g* are secured. A vertical shaft *h* is mounted in bearings *i* at the side of the frame and on which are secured a number of bevel wheels *j*, which, while incapable of a relative rotary motion on the shaft are capable of a short vertical movement thereon.

The arrangement is such that each of the bevel wheels *j* can be maintained out of gear with the corresponding bevel wheel *g* but when it is required to rotate any selected spindle, the corresponding bevel wheel is lowered to engage with the bevel wheel at the end thereof.

Said bevel wheels *j* may be arranged to slide axially on a key on the shaft *h* and a spring catch provided to maintain same in gear or out of gear as the case may be.

A hand crank h^1 is provided to rotate the shaft *h*, or the shaft may be rotated by other mechanical means or by electrical or other power.

Located at each side of each of the rollers *e*, e^1 is a ball race *m* which in turn is housed in a semi-circular bracket *n* secured to the angle iron bars by means of the screw bolts

o. Those brackets at the front of the machine are adjusted by rotating the bolts so that they support the cross spindles while those at the rear are adjusted to regulate the tension in the bands *f* so that they sag to the extent necessary to hold a roll placed thereon.

As clearly shown in Figures 7 and 8 the frames *a* are recessed to accommodate the sliding blocks *p*, which latter are retained in place by the cross straps p^1. Said blocks carry a weight *q*, or alternatively may be spring loaded, and also carry the short spindle *r* of a crank arm r^1. The second spindle r^2 secured thereto and which is preferably provided with a sleeve having ball bearings is adapted to be inserted in the centre of a roll as indicated, collars *z* being provided to prevent the ends of the rolls bearing on the framework.

Towards the upper end of the frame are two outwardly extending arms *t*, carrying a cross spindle t^1, having two rollers t^2. Also at the upper end of the frame is a cross spindle *s* provided with a bevel wheel s^1 which can be rotated by lowering the upper bevel wheel *j* on the shaft *h* to gear therewith.

Also on said spindle *s* are two drums s^2 on which are wound the bands *u* the lower ends of which are provided with hooks u^1 adapted to engage with the angle iron bars *b*.

The operation of the device is as follows:— Bevel wheel *j* is brought into engagement with bevel wheel s^1 and by means of the crank handle h^1 the spindle *s* is rotated so that the drums thereon unwind the bands *u*. The latter are passed under the roll to be raised and the hooked extremities fixed to the angle iron opposite the shelf on which the roll is to be deposited. The drums are then rotated to wind the belts thereon so that the roll is gradually raised. In Figure 2 the roll *x*, indicated in chain dotted lines, is shown partly raised. When the belts are tight as indicated by the chain dotted line u^2 the roll rolls on to the shelf.

A spindle r^2 attached to a weighted block *p* is then inserted in each end of the roll thereby maintaining same in frictional contact with the belt and also preventing same being accidentally displaced, the straps *p* maintaining the block in position.

To lower a roll from a shelf the procedure is reversed.

When it is desired to display any particular roll, the corresponding bevel wheel *j* is brought into engagement with a bevel wheel *g*.

By means of the hand crank and said gearing the rollers supporting the belts on which the rolls rest are rotated so that the roll is gradually unwound, the unwound portion descending in front of the apparatus.

By rotating the hand crank in the reverse direction the roll can be rewound.

In like manner any other roll can be unrolled for inspection and then rewound.

Any other form of gearing may be provided for rotating the bands.

If desired the bands *f* may be omitted and rollers arranged to hold and retain the rolls placed thereon.

The supporting frame may comprise a series of superimposed disjointable sections so that the height of the apparatus can be increased or decreased to suit the number of rolls to be housed therein. Each shelf may be provided with a third longitudinal roller between and at a lower level than the other two. The underside of the belt passes below the said third roller and is thereby kept from making contact with the upper sagging side of the belt.

If desired the means for driving the endless band may be omitted in the case of apparatus of smaller dimensions.

What I claim is:—

1. Apparatus for supporting a roll comprising a support, a pair of rollers journaled therein, an endless belt passing over said rollers, the axes of said rollers being parallel with and extending longitudinally of said roll, whereby the said roll may be supported solely by the top run of said belt intermediate said rollers.

2. Apparatus for supporting a roll comprising a support, a pair of rollers journaled therein, a plurality of endless belts spaced apart and passing over the said rollers, the axes of said rollers being parallel with and extending longitudinally of said roll, whereby the said roll may be supported solely by the top runs of said belts intermediate said rollers.

3. Apparatus for supporting a roll comprising a support, a pair of rollers journaled therein, a plurality of endless belts spaced apart and passing over the said rollers, the axes of said rollers being parallel with and extending longitudinally of said roll, whereby the said roll may be supported solely by the top runs of said belts intermediate said rollers and means for moving said rollers in a direction transversely of said supported roll whereby the amount of surface contact between said roll and said belts may be varied.

4. Apparatus for supporting a roll comprising a frame, a pair of rollers journaled therein, a plurality of spaced endless belts passing over said rollers the axes of said rollers being parallel with and extending longitudinally of said roll whereby said roll is supported solely by top run of each of said belts intermediate said rollers, a spindle axially positioned in said roll at each end thereof, a block slidably mounted in said frame at each end of said roll, and a link pivoted at one of its ends to each of said blocks and having its opposite end operatively connected to said roll

spindle, whereby said roll is maintained in operative contact with said supporting belts.

5. Display apparatus comprising a support having a plurality of shelves each of which comprises apparatus for supporting a roll comprising a pair of rollers journaled in said support an endless belt passing over said rollers, the axes of said rollers being parallel with and extending longitudinally of said roll, whereby said roll is supported solely by the top run of each of said belts intermediate said rollers, an actuating spindle for each shelf operatively connected to one of said rollers, an operating shaft common to all of said shelves, a gear wheel mechanism for operatively associating each of said actuating spindles with said common operating shaft, including a movable control element for rendering said gear wheel mechanism ineffective.

6. Display apparatus having a plurality of shelves, a plurality of actuating spindles for said shelves, a common operating shaft, and a plurality of gear-wheel mechanisms for operatively associating said common operating shaft and said spindles, each mechanism having a movable control element for rendering ineffective the same.

7. A display apparatus comprising a plurality of pairs of spaced horizontal spindles, roll supporting means associated with each pair of spindles, a common operating shaft, and gear-wheel mechanism individual to each pair of spindles for operatively associating the same with said shaft, said mechanism having at least one control element for rendering the same ineffective.

8. Apparatus of the class described comprising a supporting frame having a shelf adapted to receive a roll, said shelf comprising rotatable bands for supporting the roll, and means for raising and lowering said roll to and from said shelf comprising a winding drum and a belt having one end adapted to be secured to the frame and the other end to said drum.

9. Apparatus of the class described comprising a plurality of rotatable bands adapted to support a roll, an actuating spindle, means for raising and lowering said roll comprising a rotatable spindle and a belt having one end fixed and the other end secured to said spindle, and common operating means for said spindles.

10. Apparatus of the class described comprising a plurality of rotatable bands adapted to support a roll, an actuating spindle, means for raising and lowering said roll comprising a rotatable spindle and a belt having one end fixed and the other end secured to said spindle, a common operating shaft for said spindles, and means for selectively associating said shaft and said spindles.

HENRY ELLIOTT.